

ABSTRACTTHERMAL TREATMENT METHOD

An article of titanium or a titanium-based alloy, or of zirconium or a zirconium-based alloy is case hardened by heat treatment for at least 12 hours at one or more temperatures in the range of 850°C to 900°C and at a pressure in the order of atmospheric pressure in an oxygen diffusion atmosphere. The oxygen diffusion atmosphere comprises a carrier gas such as argon which does not react chemically with the article the said temperature range and molecular oxygen. The concentration of oxygen as the oxygen diffusion atmosphere is in the range of 10 volumes per million to 400 volumes per million.